

### **REMARKS**

This paper responds to the Office Action mailed on January 11, 2005.

Claims 1, 3-25, 27-33, and 36 are amended. Claims 1-36 remain pending in this application.

### **§102 Rejection of the Claims**

**Claims 1-3, 5, 7, 9, 11, 13-15, 17-19, and 21-26 were rejected under 35 USC § 102(b) as being anticipated by Jones et al. (U.S. Patent No. 5,534,743).**

Applicant respectfully traverses.

Independent claim 1 recites "at least one emitter having an external coating, and an implanted oxide layer for releasing electrons at a predetermined energy level, wherein the implanted oxide layer is conforming to an entire surface of the emitter, and wherein the implanted oxide layer is underneath a surface of the emitter". Applicant is unable to find in Jones et al. (Jones) "at least one emitter having an external coating, and an implanted oxide layer for releasing electrons at a predetermined energy level, wherein the implanted oxide layer is conforming to an entire surface of the emitter". Accordingly, Applicant requests that the rejection of claim 1 be reconsidered and withdrawn, and that claim 1 and dependent claim 2 be allowed.

Independent claim 3 recites, "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 3 be reconsidered and withdrawn, and that claim 3 be allowed.

Independent claim 5 recites "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting a lowering mechanism

to enhance the emission of electrons". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting a lowering mechanism to enhance the emission of electrons". Accordingly, Applicant requests that the rejection of claim 5 be reconsidered and withdrawn, and that claim 5 be allowed.

Independent claim 7 recites "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 7 be reconsidered and withdrawn, and that claim 7 be allowed.

Independent claim 9 recites "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for enhancing the Schottky effect to enhance the emission of electrons". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for enhancing the Schottky effect to enhance the emission of electrons". Accordingly, Applicant requests that the rejection of claim 9 be reconsidered and withdrawn, and that claim 9 be allowed.

Independent claim 11 recites "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons".

Accordingly, Applicant requests that the rejection of claim 11 be reconsidered and withdrawn, and that claim 11 be allowed.

Independent claim 13 recites "at least one emitter having an external coating, and an oxide ion implantation layer for releasing electrons at a predetermined energy level, wherein the oxide ion implantation layer is conforming to an entire surface of the emitter for enhancing the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter".

Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide ion implantation layer for releasing electrons at a predetermined energy level, wherein the oxide ion implantation layer is conforming to an entire surface of the emitter for enhancing the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter".

Accordingly, Applicant requests that the rejection of claim 13 be reconsidered and withdrawn, and that claim 13 and dependent claim 14 be allowed.

Independent claim 15 recites "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 15 be reconsidered and withdrawn, and that claim 15 be allowed.

Independent claim 17 recites "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons and for limiting an outgassing to

inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 17 be reconsidered and withdrawn, and that claim 17 and dependent claim 18 be allowed.

Independent claim 19 recites "at least one emitter having an external coating, and an oxide implantation layer for emitting electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for improving the Schottky effect to enhance the emission of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation layer for emitting electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for improving the Schottky effect to enhance the emission of electrons and for limiting an outgassing to inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 19 be reconsidered and withdrawn, and that claim 19 be allowed.

Independent claim 21 recites "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 21 be reconsidered and withdrawn, and that claim 21 and dependent claim 22 be allowed.

Independent claim 23 recites "at least one emitter having an external coating, and a silicon oxide ion implantation layer conforming to an entire surface of the emitter". Applicant is unable to find in Jones "at least one emitter having an external coating, and a silicon oxide ion implantation layer conforming to an entire surface of the emitter". Accordingly, Applicant requests that the rejection of claim 23 be reconsidered and withdrawn, and that claim 23 be allowed.

Independent claim 24 recites "at least one emitter having an external coating, and an oxide implantation layer conforming to an entire surface of the emitter for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is underneath a surface of the emitter". Applicant is unable to find in Jones "at least one emitter having an external coating, and an oxide implantation layer conforming to an entire surface of the emitter for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is underneath a surface of the emitter". Accordingly, Applicant requests that the rejection of claim 24 be reconsidered and withdrawn, and that claim 24 be allowed.

Independent claim 25 recites "at least one emitter having an external coating, and an embedded silicon oxide layer conforming to an entire surface of the emitter". Applicant is unable to find in Jones "at least one emitter having an external coating, and an embedded silicon oxide layer conforming to an entire surface of the emitter". Accordingly, Applicant requests that the rejection of claim 25 be reconsidered and withdrawn, and that claim 25 and dependent claim 26 be allowed.

**Claims 3, 5, 7, 9, 11, 13-15, 17-19, 21, 22, and 33-36 were rejected under 35 USC § 102(e) as being anticipated by Zimlich (U.S. Patent No. 6,130,106).**

Applicant respectfully traverses.

Independent claim 3 recites, "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 3 be reconsidered and withdrawn, and that claim 3 be allowed.

Independent claim 5 recites "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting a lowering mechanism to enhance the emission of electrons". Applicant is unable to find in Zimlich "at least one

emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting a lowering mechanism to enhance the emission of electrons".

Accordingly, Applicant requests that the rejection of claim 5 be reconsidered and withdrawn, and that claim 5 be allowed.

Independent claim 7 recites "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 7 be reconsidered and withdrawn, and that claim 7 be allowed.

Independent claim 9 recites "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for enhancing the Schottky effect to enhance the emission of electrons". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for enhancing the Schottky effect to enhance the emission of electrons".

Accordingly, Applicant requests that the rejection of claim 9 be reconsidered and withdrawn, and that claim 9 be allowed.

Independent claim 11 recites "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons".

Accordingly, Applicant requests that the rejection of claim 11 be reconsidered and withdrawn, and that claim 11 be allowed.

Independent claim 13 recites "at least one emitter having an external coating, and an oxide ion implantation layer for releasing electrons at a predetermined energy level, wherein the oxide ion implantation layer is conforming to an entire surface of the emitter for enhancing the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter".

Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide ion implantation layer for releasing electrons at a predetermined energy level, wherein the oxide ion implantation layer is conforming to an entire surface of the emitter for enhancing the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter".

Accordingly, Applicant requests that the rejection of claim 13 be reconsidered and withdrawn, and that claim 13 and dependent claim 14 be allowed.

Independent claim 15 recites "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 15 be reconsidered and withdrawn, and that claim 15 be allowed.

Independent claim 17 recites "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons and for limiting an outgassing to

inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 17 be reconsidered and withdrawn, and that claim 17 and dependent claim 18 be allowed.

Independent claim 19 recites "at least one emitter having an external coating, and an oxide implantation layer for emitting electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for improving the Schottky effect to enhance the emission of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation layer for emitting electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for improving the Schottky effect to enhance the emission of electrons and for limiting an outgassing to inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 19 be reconsidered and withdrawn, and that claim 19 be allowed.

Independent claim 21 recites "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 21 be reconsidered and withdrawn, and that claim 21 and dependent claim 22 be allowed.

Independent claim 33 recites "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for reducing a potential barrier to enhance the releasing of electrons and for inhibiting degradation of the emitter in the presence of the outgassing". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for reducing a



potential barrier to enhance the releasing of electrons and for inhibiting degradation of the emitter in the presence of the outgassing". Accordingly, Applicant requests that the rejection of claim 33 be reconsidered and withdrawn, and that claim 33 and dependent claims 34 and 35 be allowed.

Independent claim 36 recites "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for reducing a dielectric effect of the emitter and is stable in the presence of the outgassing". Applicant is unable to find in Zimlich "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for reducing a dielectric effect of the emitter and is stable in the presence of the outgassing". Accordingly, Applicant requests that the rejection of claim 36 be reconsidered and withdrawn, and that claim 36 be allowed.

**Claims 3, 5, 7, 9, 11, and 13-15 were rejected under 35 USC § 102(b) as being anticipated by Jaskie et al. (U.S. Patent No. 5,141,460).**

Applicant respectfully traverses.

Independent claim 3 recites, "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons". Applicant is unable to find in Jaskie et al. (Jaskie) "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 3 be reconsidered and withdrawn, and that claim 3 be allowed.

Independent claim 5 recites "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting a lowering mechanism to enhance the emission of electrons". Applicant is unable to find in Jaskie "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined

energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting a lowering mechanism to enhance the emission of electrons". Accordingly, Applicant requests that the rejection of claim 5 be reconsidered and withdrawn, and that claim 5 be allowed.

Independent claim 7 recites "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons". Applicant is unable to find in Jaskie "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for affecting an image force to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 7 be reconsidered and withdrawn, and that claim 7 be allowed.

Independent claim 9 recites "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for enhancing the Schottky effect to enhance the emission of electrons". Applicant is unable to find in Jaskie "at least one emitter having an external coating, and an oxide implantation for emitting electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for enhancing the Schottky effect to enhance the emission of electrons". Accordingly, Applicant requests that the rejection of claim 9 be reconsidered and withdrawn, and that claim 9 be allowed.

Independent claim 11 recites "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons". Applicant is unable to find in Jaskie "at least one emitter having an external coating, and an oxide implantation for releasing electrons at a predetermined energy level, wherein the oxide implantation is conforming to an entire surface of the emitter for decreasing a dielectric effect of the emitter to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 11 be reconsidered and withdrawn, and that claim 11 be allowed.

Independent claim 13 recites "at least one emitter having an external coating, and an oxide ion implantation layer for releasing electrons at a predetermined energy level, wherein the oxide ion implantation layer is conforming to an entire surface of the emitter for enhancing the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Jaskie "at least one emitter having an external coating, and an oxide ion implantation layer for releasing electrons at a predetermined energy level, wherein the oxide ion implantation layer is conforming to an entire surface of the emitter for enhancing the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 13 be reconsidered and withdrawn, and that claim 13 and dependent claim 14 be allowed.

Independent claim 15 recites "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Applicant is unable to find in Jaskie "at least one emitter having an external coating, and an oxide implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the emitter". Accordingly, Applicant requests that the rejection of claim 15 be reconsidered and withdrawn, and that claim 15 be allowed.

### **§103 Rejection of the Claims**

**Claims 4, 6, 8, 10, 12, 16, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Jones et al. (U.S. Patent No. 5,534,743).**

Applicant respectfully traverses because a *prima facie* cases of obviousness has not been made.

Claims 4, 6, 8, 10, 16, and 20 are amended only to rewrite these claims in independent form. The scope of these claims is not altered after the amendment.

Claim 4 recites "at least one emitter having an implantation for releasing electrons at a predetermined energy level, wherein the implantation is conforming to an entire surface of the

emitter for lowering a potential barrier to enhance the releasing of electrons wherein the implantation is a layer underneath the surface of the emitter".

The Office Action states that Jones discloses the claimed invention *except* for the implantation layer being underneath the surface of the emitter. The Office Action further states that it would have been an obvious matter of design choice to have the implanted layer underneath the surface of the emitter. Since the Office Action uses only a single reference (Jones) to reject claim 4 under 35 USC § 103(a) without offering documents to support the rejection of some of the features of claim 4, Applicant assumes that the Examiner is taking Official Notice in rejecting some of the features of claim 4. Applicant respectfully traverses the taking of Official Notice and, pursuant to M.P.E.P. § 2144.03, Applicant requests for documents to support the rejection of claim 4. Moreover, Applicant cannot find in Jones a motivation for altering its structure as proposed in the Office Action. In the absence of documents to support the rejection of claim 4, Applicant requests that the rejection of claim 4 be reconsidered and withdrawn, and that claim 4 be allowed.

Regarding claims 6, 8, 10, 12, 16, and 20, the Office Action also uses only a single reference (Jones) to reject claims 6, 8, 10, 12, 16, and 20 under 35 USC § 103(a) without offering documents to support the rejection of some of the features of these claims, Applicant assumes that the Examiner is taking Official Notice in rejecting some of the features of each of these claims. Applicant respectfully traverses the taking of Official Notice and, pursuant to M.P.E.P. § 2144.03, Applicant requests for documents to support the rejection of claims 6, 8, 10, 12, 16, and 20. Moreover, Applicant cannot find in Jones a motivation for altering its structure as proposed in the Office Action. In the absence of documents to support the rejection of claims 6, 8, 10, 12, 16, and 20, Applicant requests that the rejection of claims 6, 8, 10, 12, 16, and 20 be reconsidered and withdrawn, and that claims 6, 8, 10, 12, 16, and 20 be allowed.

**Claims 4, 6, 8, 10, 12, 16, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Zimlich.**

Applicant respectfully traverses because a *prima facie* cases of obviousness has not been made.

Claims 4, 6, 8, 10, 16, and 20 are amended only to rewrite these claims in independent form. The scope of these claims is not altered after the amendment.

Claim 4 recites "at least one emitter having an implantation for releasing electrons at a predetermined energy level, wherein the implantation is conforming to an entire surface of the emitter for lowering a potential barrier to enhance the releasing of electrons wherein the implantation is a layer underneath the surface of the emitter".

The Office Action states that Zimlich discloses the claimed invention *except* for the implantation layer being underneath the surface of the emitter. But the Office Action further states that it would have been an obvious matter of design choice to have the implanted layer underneath the surface of the emitter. Since the Office Action uses only a single reference (Zimlich) to reject claim 4 under 35 USC § 103(a) without offering documents to support the rejection of some of the features of claim 4, Applicant assumes that the Examiner is taking Official Notice in rejecting some of the features of claim 4. Applicant respectfully traverses the taking of Official Notice and, pursuant to M.P.E.P. § 2144.03, Applicant requests for documents to support the rejection of claim 4. Moreover, Applicant cannot find in Zimlich a motivation for altering its structure as proposed in the Office Action. In the absence of documents to support the rejection of claim 4, Applicant requests that the rejection of claim 4 be reconsidered and withdrawn, and that claim 4 be allowed.

Regarding claims 6, 8, 10, 12, 16, and 20, the Office Action also uses only a single reference (Zimlich) to reject claims 6, 8, 10, 12, 16, and 20 under 35 USC § 103(a) without offering documents to support the rejection of some of the features of these claims, Applicant assumes that the Examiner is taking Official Notice in rejecting some of the features of each of these claims. Applicant respectfully traverses the taking of Official Notice and, pursuant to M.P.E.P. § 2144.03, Applicant requests for documents to support the rejection of claims 6, 8, 10, 12, 16, and 20. Moreover, Applicant cannot find in Zimlich a motivation for altering its structure as proposed in the Office Action. In the absence of documents to support the rejection of claims 6, 8, 10, 12, 16, and 20, Applicant requests that the rejection of claims 6, 8, 10, 12, 16, and 20 be reconsidered and withdrawn, and that claims 6, 8, 10, 12, 16, and 20 be allowed.

**Claims 1, 2, and 23-26 were rejected under 35 USC § 103(a) as being unpatentable over Zimlich in view of Goodman et al. (U.S. Patent No. 5,311,055).**

Applicant respectfully traverses.

Independent claim 1 recites "at least one emitter having an external coating, and an implanted oxide layer for releasing electrons at a predetermined energy level, wherein the implanted oxide layer is conforming to an entire surface of the emitter, and wherein the implanted oxide layer is underneath a surface of the emitter". Applicant is unable to find in Zimlich and Goodman "at least one emitter having an external coating, and an implanted oxide layer for releasing electrons at a predetermined energy level, wherein the implanted oxide layer is conforming to an entire surface of the emitter". Accordingly, Applicant requests that the rejection of claim 1 be reconsidered and withdrawn, and that claim 1 and dependent claim 2 be allowed.

Independent claim 23 recites "at least one emitter having an external coating, and a silicon oxide ion implantation layer conforming to an entire surface of the emitter". Applicant is unable to find in Zimlich and Goodman "at least one emitter having an external coating, and a silicon oxide ion implantation layer conforming to an entire surface of the emitter". Accordingly, Applicant requests that the rejection of claim 23 be reconsidered and withdrawn, and that claim 23 be allowed.

Independent claim 24 recites "at least one emitter having an external coating, and an oxide implantation layer conforming to an entire surface of the emitter for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is underneath a surface of the emitter". Applicant is unable to find in Zimlich and Goodman "at least one emitter having an external coating, and an oxide implantation layer conforming to an entire surface of the emitter for releasing electrons at a predetermined energy level, wherein the oxide implantation layer is underneath a surface of the emitter". Accordingly, Applicant requests that the rejection of claim 24 be reconsidered and withdrawn, and that claim 24 be allowed.

Independent claim 25 recites "at least one emitter having an external coating, and an embedded silicon oxide layer conforming to an entire surface of the emitter". Applicant is unable to find in Zimlich and Goodman "at least one emitter having an external coating, and an embedded silicon oxide layer conforming to an entire surface of the emitter". Accordingly, Applicant requests that the rejection of claim 25 be reconsidered and withdrawn, and that claim 25 and dependent claim 26 be allowed.

**Claims 27-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Zimlich in view of Doan et al. (U.S. Patent No. 5,372,973).**

Applicant respectfully traverses.

Independent claim 27 recites "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for enhancing the releasing of electrons". Applicant is unable to find in Zimlich and Doan "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for enhancing the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 27 be reconsidered and withdrawn, and that claim 27 be allowed.

Independent claim 28 recites "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for lowering a potential barrier to enhance the releasing of electrons". Applicant is unable to find in Zimlich and Doan "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for lowering a potential barrier to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 28 be reconsidered and withdrawn, and that claim 28 be allowed.

Independent claim 29 recites "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for affecting a lowering mechanism to enhance an emission of electrons". Applicant is unable to find in Zimlich and Doan "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface

of the emitter for limiting an outgassing to inhibit degradation of the emitter and for affecting a lowering mechanism to enhance an emission of electrons". Accordingly, Applicant requests that the rejection of claim 29 be reconsidered and withdrawn, and that claim 29 be allowed.

Independent claim 30 recites "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for affecting an image force to enhance the releasing of electrons". Applicant is unable to find in Zimlich and Doan "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for affecting an image force to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 30 be reconsidered and withdrawn, and that claim 30 be allowed.

Independent claim 31 recites "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for improving the Schottky effect to enhance an emission of electrons". Applicant is unable to find in Zimlich and Doan "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for improving the Schottky effect to enhance an emission of electrons". Accordingly, Applicant requests that the rejection of claim 31 be reconsidered and withdrawn, and that claim 31 be allowed.

Independent claim 32 recites "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface of the emitter for limiting an outgassing to inhibit degradation of the emitter and for decreasing a dielectric effect of the emitter to enhance the releasing of electrons". Applicant is unable to find in Zimlich and Doan "at least one emitter having an external coating and an embedded oxide layer for releasing electrons at a predetermined energy level, wherein the embedded oxide layer is conforming to an entire surface



of the emitter for limiting an outgassing to inhibit degradation of the emitter and for decreasing a dielectric effect of the emitter to enhance the releasing of electrons". Accordingly, Applicant requests that the rejection of claim 32 be reconsidered and withdrawn, and that claim 32 be allowed.

### CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6969 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

YONGJUN HU

By his Representatives,

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Date

April 11, 2005

By

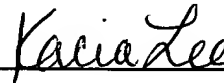


Viet V. Tong  
Reg. No. 45,416

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 11 day of April, 2005.

KACIA LEE

Name



Signature